

Taking the first step in managing subclinical hypocalcemia

Contributed by Brittany Sweeney

The calcium status of the early postpartum cow is an important factor in determining the cow's ability to get off to a healthy start and meet her productive and reproductive potential in that lactation. We're talking about more than just those notorious milk fever cows.

Cows with subclinical hypocalcemia (SCH), meaning those with blood calcium below a normal level with no clinical signs of disease, are more susceptible to metabolic and infectious diseases, produce less milk in early lactation and have decreased ability to become pregnant. How are your cows "measuring up" in terms of postpartum calcium status? As it turns out, that's a loaded question.

Measuring blood calcium can be a powerful tool. Currently, there are no standardized targets for SCH incidence, but blood calcium values can provide us with information that can be used to make herd-level management decisions. Measurement of blood calcium in a group of cows can reflect the efficacy of prevention strategies (i.e., a prepartum diet balanced for a low or negative dietary cation-anion difference or DCAD) or the influence of management changes (overcrowding, feed changes, etc.).

Since we're lacking meaningful targets for SCH incidence, the best approach may be to use this information as a barometer of the calcium status of the fresh cows. Large changes in the percentage of cows that fall below a blood calcium cutpoint from month to month – recent data suggests a blood total calcium cutpoint around 8.5 mg per dL – may warrant further investigation into management

of close-up dry cows. A reasonable starting point for sample size, to account for normal variation in blood calcium post-calving, should be approximately 15 to 20 cows in order to increase confidence in the conclusions drawn from the data.

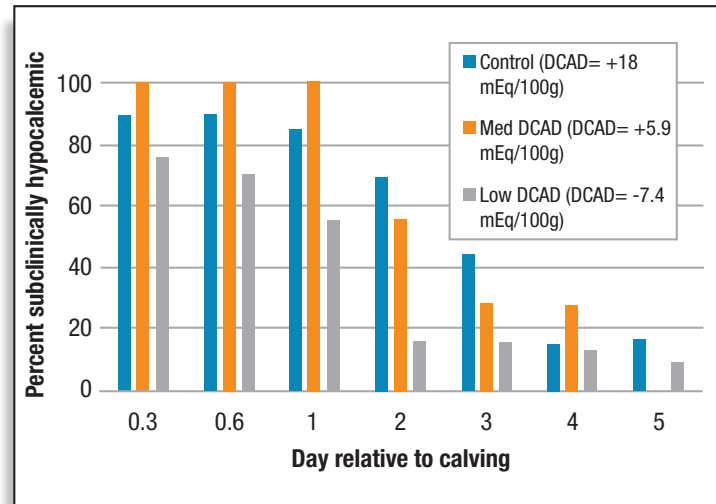
The key in acquiring valuable data is to ensure consistency of blood sample timing relative to calving. This can be illustrated by data collected as part of my Ph.D. work. In this study, cows were fed one of three levels of DCAD in the prepartum period, a strategy which can be implemented to improve postpartum calcium status. The percentage of third-lactation and older cows in each treatment group with SCH (blood calcium less than 8.5 mg per dL) at several time points in the first five days in milk is illustrated in **Figure 1**. In this study, the incidence of SCH is highest in the day after calving, ranging from 70 to 100 percent, reflecting the period in which blood calcium reaches its lowest point.

Just two days later, the range in SCH incidence drops to 14 to 70 percent as the cow's blood calcium is recovering. Evidently, the window of sampling must be small, ideally no more than a one-day spread, in order to make meaningful comparisons. A difference among treatment groups became more evident after 24 hours post-calving, suggesting that samples collected after this time may more accurately reflect the impact of DCAD strategy.

Some important points in regards to sample timing and interpretation:

1 A consistent, narrow window in timing of blood

Figure 1 Percent of 3rd lactation and older cows with subclinical hypocalcemia (blood calcium <8.5 mg/dL) in the 5 days postcalving by treatment group



sample collection is crucial in order to have comparable data.

2 Some drop in blood calcium post-calving is inevitable, and therefore eliminating SCH may not be an achievable goal.

3 Measuring blood calcium at the expected lowest point (12 to 24 hours postpartum) may not be the most valuable when making herd-level assessments. Management strategies may play more of a role in the recovery of blood calcium, and this is more accurately assessed after 24 hours post-calving.

Ongoing research in this area will provide further information about the most effective sampling strategies. Despite the constraints in assessing calcium status, properly collected data can provide a starting point for evaluating management strategies. Using this information to your advantage can minimize the impact that subclinical hypocalcemia has

on your herd and enable cows to meet their potential. **PD**

—Excerpts from *Miner Institute Farm Report*, November 2015



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Reprinted from Jan. 19, 2016